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(54) Title: PRODUCTION OF LAYERED DOUBLE HYDROXIDES

(57) Abstract: A method for the manufacture of ammonium nitrate and LDH containing nitrate as an interlayer anion, the method including the steps of: (1) providing a source of nitric acid (2) providing a source of ammonia; (3) reacting ammonia with nitric acid to produce ammonium nitrate; (4) preparing a nitrate containing a first metal by reacting a compound containing the first metal with nitric acid or ammonium nitrate; (5) either: (a) preparing a nitrate containing a second metal by: (i) contacting a compound containing the second metal with nitric acid; or (ii) contacting a compound containing the second metal with ammonium nitrate; or (b) providing a compound containing the second metal; and (6) mixing the nitrate containing the first metal from step (4) with the nitrate containing the second metal or the compound containing the second metal from step (5) and ammonium hydroxide to form the LDH containing nitrate as an interlayer anion and ammonium nitrate. The method can be integrated with existing ammonium nitrate plants.